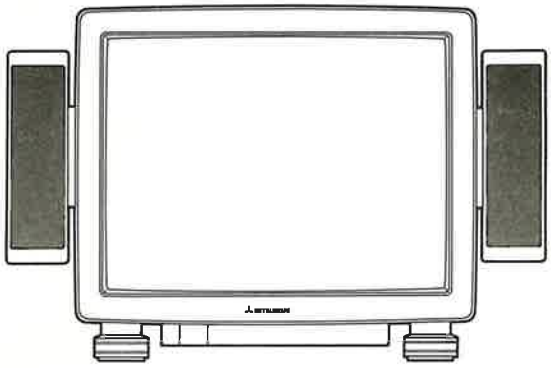
MITSUBISHI

COLOR MONITOR
OPERATION MANUAL

MODEL

AM-2752A



FEATURES:

1. Automatic tracking of wide range of horizontal and vertical scanning frequencies.
   f (H)=15.6 – 39.0kHz
   f (V)=45 – 100Hz
2. 0.76mm (center) stripe pitch and tinted glass CRT
   Equipped DBF (Dynamic Beam Focus)
3. Broad Input Compatibility
   - NTSC/PAL/SECAM Composite video, S-VIDEO
   - RGB TTL
   - RGB ANALOG
   - Monochrome TTL
4. Adjustable screen size and position.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

FCC COMPLIANCE NOTICE

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

WARNING

Use the attached specified shielded power supply cord and attached shielded (2.0m cord length) signal cables.

(1) SHIELDED POWER SUPPLY CORD
(2) SHIELDED 9 PIN – 9 PIN CABLE (used for IBM® MDA, CGA, EGA, or Compatible Graphic Adapters)
(3) SHIELDED 25 PIN – 15 PIN CABLE (used for IBM® VGA or Compatible Graphic Adapters)
(4) BNC CABLE

If you use other cables, it may cause interference with radio and television reception.

* IBM® is a registered trade mark of International Business Machines Corporation.

Congratulations

On your selection of MITSUBISHI COLOR MONITOR AM-2752A, you have acquired a product that will greatly enhance your video pleasure. Because of the sophistication of this advanced electronic device, we recommend that you thoroughly understand the contents of this operation and installation manual before using.

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1. PRECAUTIONS

In the interest of safety, please observe the following precautions.

NEVER REMOVE THE BACK COVER
A part of the high voltage circuit is involved.
A careless touch may cause an electrical shock.

PROTECT THE POWER CORD
Damage to the power cord may cause fire or shock hazard.
When unplugged, hold by the plug only and remove carefully.

MAINTAIN GOOD VENTILATION
Ventilation slots and holes are provided on the top, rear sides, and bottom of this unit.
Place the unit on a hard and level surface, and locate at least 4 inches from walls to ensure proper ventilation.

NEVER INSERT ANY OBJECT INTO THE SET
Foreign objects of any kind inserted into this unit constitute a safety hazard and cause extensive damage.

DO NOT PLACE ANYTHING ON THE MONITOR
Heavy objects placed on the monitor cause damage or obstruct proper ventilation.
Do not place on this unit any receptacle such as a vase or glass which contains any liquid.
Using this unit with water or any liquid which might infiltrate into the unit may cause troubles such as fire and electric shock.

DO NOT SUBJECT THE SET TO IMPACT OR MECHANICAL SHOCK
Take care not to give an impact to the set when you carry it.
Your attention is especially required for the CRT.

BE CAREFUL REGARDING MAGNETIC INFLUENCES
Drawing a magnet, speaker system, printer, or floppy disk that will generate magnetism, near to the display unit, may cause blurred colors deformed.
Your attention is called to this point.

DO NOT USE IN THE WRONG PLACE
Please refrain from subjecting the unit to vibration or where hydrogen sulfide or sulfur oxide generates.
Never place the monitor near or over a radiator, or in direct sunlight.

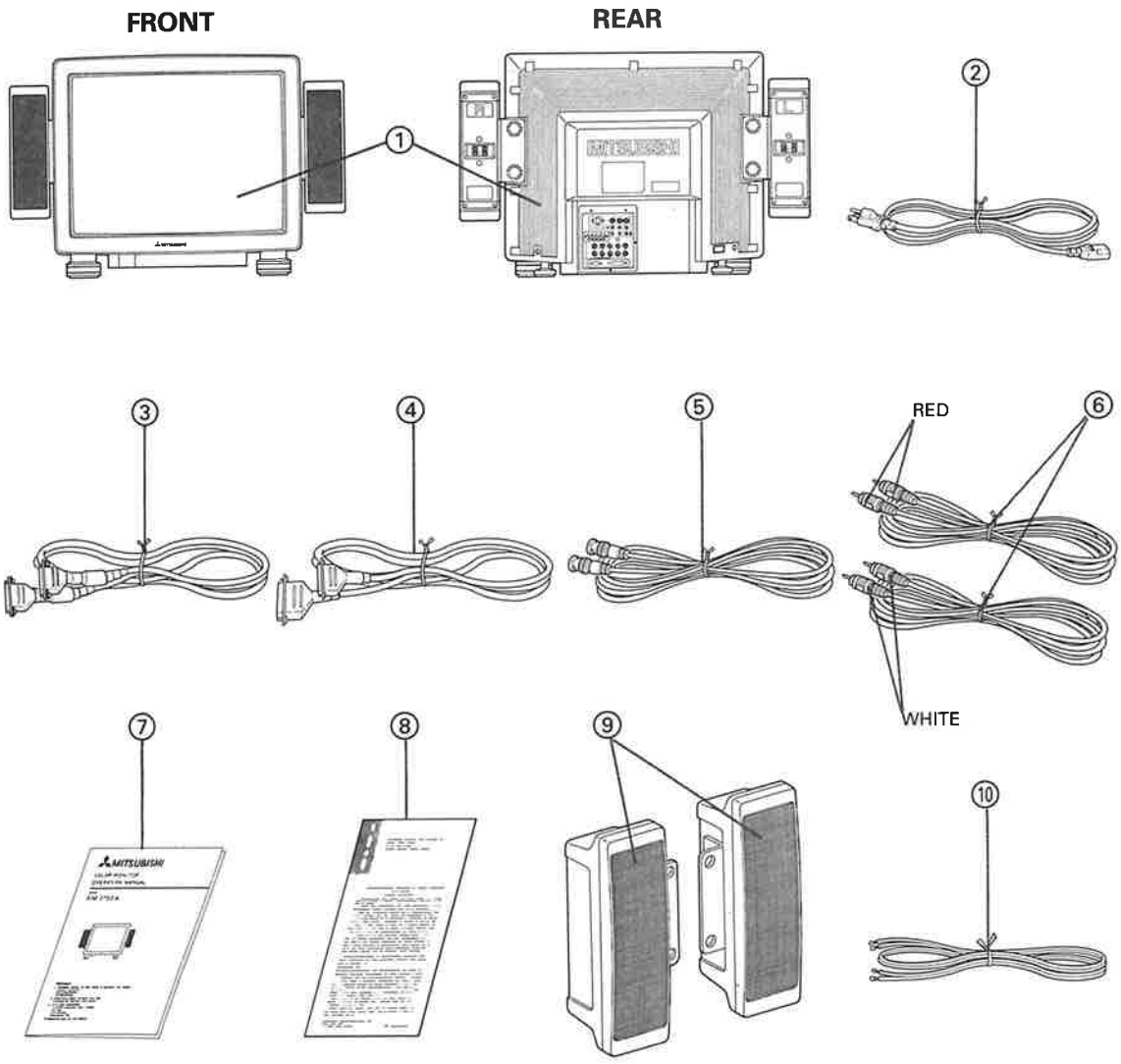
CARE OF THE CABINET
Unplug and clean with a soft cloth slightly moistened with a mild soap and water solution.
Allow to dry completely before operating.
Never use petroleum base solutions or abrasive cleaners.

DO NOT PLACE THE MONITOR ON AN UNSTABLE CART, STAND, OR TABLE
The monitor may fall and cause serious injury to users or serious damage to the appliance.
Please use only with a stable cart, stand, or table.
The appliance and cart combination should be moved with care.
Quick stops, excessive force, and uneven surface may cause the appliance and cart combination to overturn.

S3126A

2. INITIAL INSPECTION

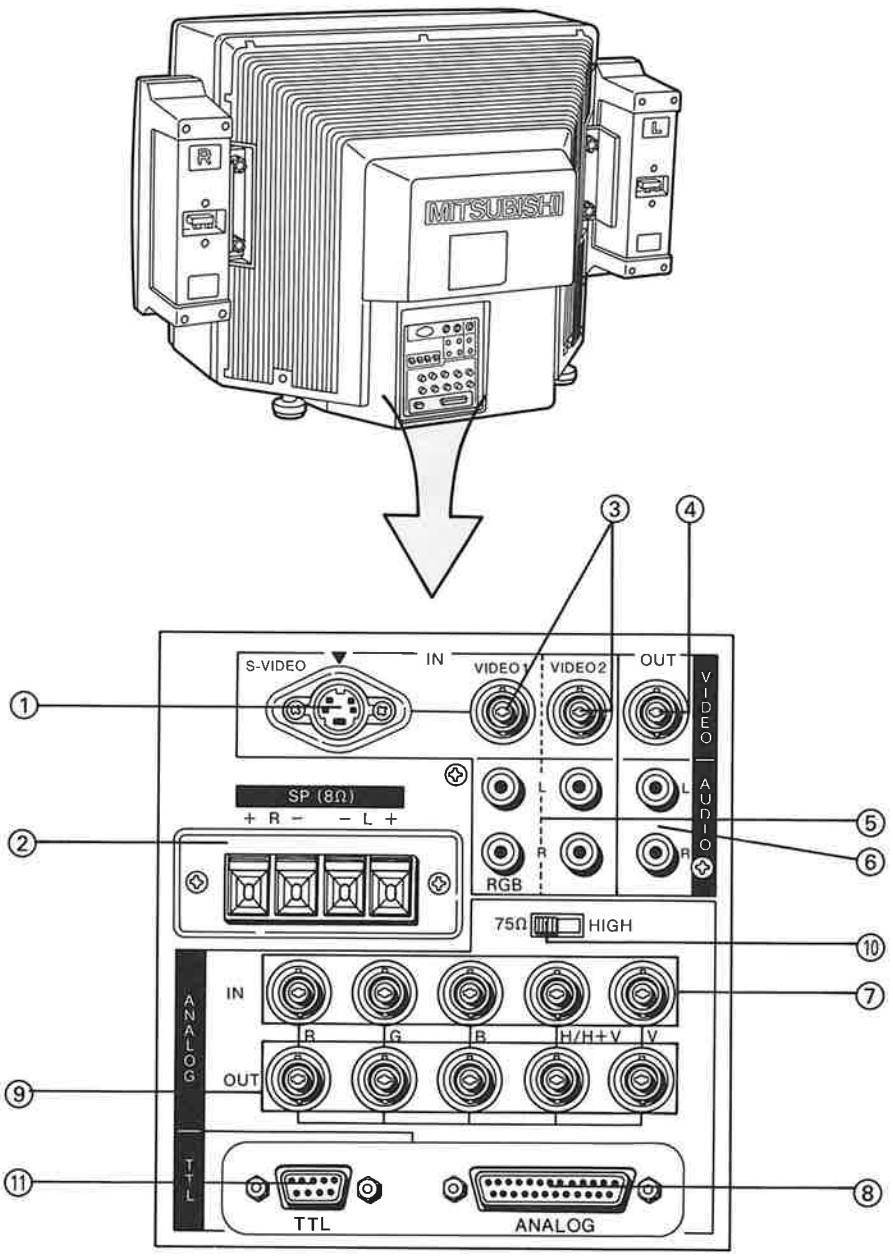
Carefully unpack and inspect the monitor and accompanying parts.
Compare your parts with those shown below.



① AM-2752A
② POWER CORD
③ SIGNAL CABLE (D-SUB 9 PIN)
④ SIGNAL CABLE (D-SUB 25 PIN – 15 PIN)
⑤ SIGNAL CABLE (BNC TYPE)
⑥ 2 SIGNAL CABLES (RCA TYPE)
⑦ OPERATION MANUAL
⑧ WARRANTY CARD
⑨ 2 SPEAKERS
⑩ 2 LEAD WIRES

3. CONNECTING THE MONITOR TO YOUR EQUIPMENT

REAR



① **S-VIDEO INPUT**
Connect S-VIDEO VCR.
Input Separate Luminance and Chroma signals.
Select <VIDEO 1> at INPUT SIGNAL SELECT SWITCHES located on the front panel.

② **SPEAKER OUTPUT**
Connect to speakers.
The volume can be adjusted with VOLUME CONTROL <VOL> on the front panel.

③ **VIDEO INPUT (BNC TYPE)**
Connect NTSC/PAL/SECAM Composite source.
Select <VIDEO 1> or <VIDEO 2> at INPUT SIGNAL SELECT SWITCHES located on the front panel.
*When selecting <VIDEO 1>, S-VIDEO signal is displayed in connecting to both ① and ③.

④ **VIDEO OUTPUT (BNC TYPE)**
Select <VIDEO 1> or <VIDEO 2> at INPUT SIGNAL SELECT SWITCHES located on the front panel.

⑤ **AUDIO INPUT (RCA-JACK)**
Connect the Audio signal from Composite video sources, or RGB signal.
Connect the Audio signal for <VIDEO 1> into <AUDIO 1>.
Connect the Audio signal for <VIDEO 2> into <AUDIO 2>.
Connect the Audio signal for <S-VIDEO> into <AUDIO 1>.
Connect the Audio signal for <RGB> into <AUDIO 1>.

⑥ **AUDIO OUTPUT (RCA-JACK)**
Select <AUDIO 1> for <VIDEO 1> or <AUDIO 2> for <VIDEO 2>, or <AUDIO 1> for <RGB>.

⑦ **ANALOG INPUT (BNC TYPE)**
Input Red, Green or Green+Sync., Blue, Horizontal Sync., and Vertical Sync. signal from RGB ANALOG equipment (broadcast transmitters, test or measurement devices, etc.) into BNC.

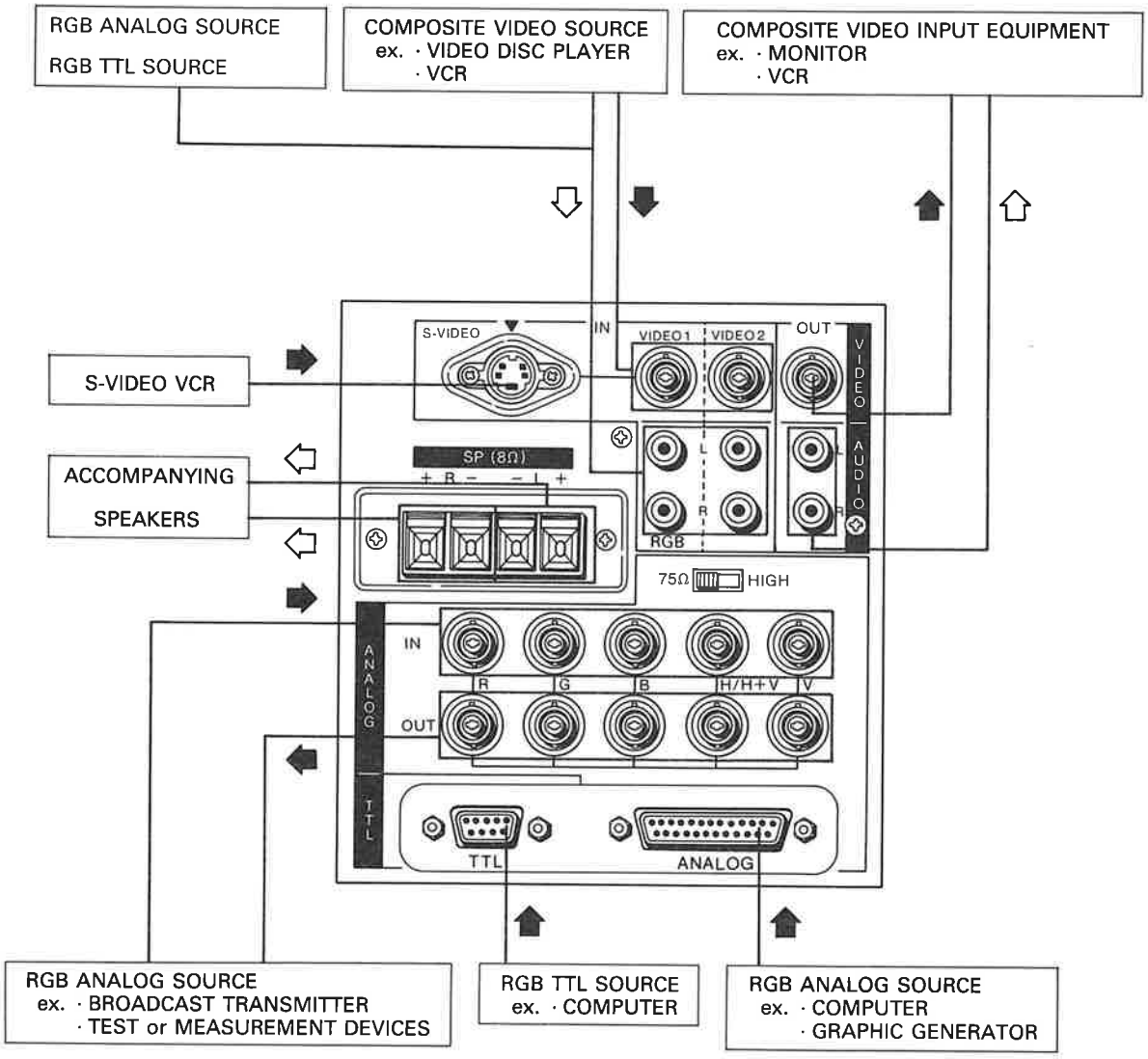
⑧ **ANALOG INPUT (D-SUB 25 PIN)**
Connect computers, graphic generators, and other RGB ANALOG equipment.
***Note:** Put ANALOG signal into either ⑦ or ⑧ only because of the parallel connection.

⑨ **ANALOG OUTPUT (BNC TYPE)**
1) Connect Red, Green or Green+Sync., and Blue signal output to RGB ANALOG equipment.
   Slide IMPEDANCE SELECT SWITCH to <HIGH>.
2) Connect Horizontal Sync./Composite Sync. and Vertical Sync. output to appropriate terminal.

⑩ **IMPEDANCE SELECT SWITCH**
Slide to <HIGH> for Red, Green or Green+Sync., Horizontal Sync., and Vertical Sync., outputs.
Normally slide to <75Ω> except for above.
*Horizontal and Vertical Sync. terminate at 1kΩ.

⑪ **TTL INPUT (D-SUB 9 PIN)**
Connect RGB TTL signal (computers, etc.).

CONNECTION EXAMPLES



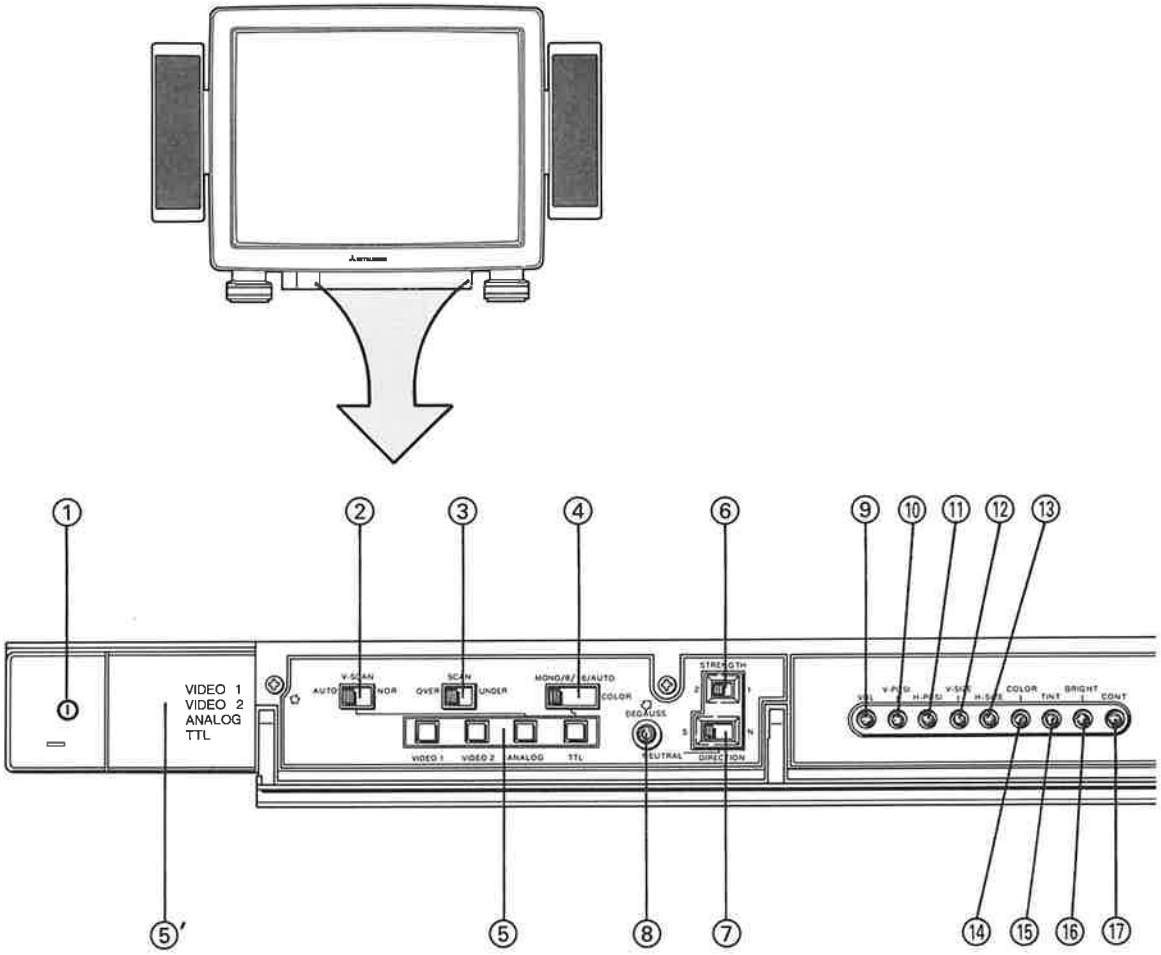
VIDEO SIGNAL

AUDIO SIGNAL

4. FUNCTIONS AND FEATURES

1. FRONT CONTROLS

FRONT



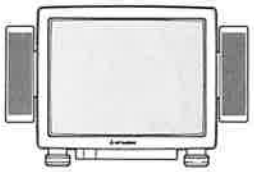
① **MAIN POWER ON/OFF SWITCH WITH POWER ON INDICATOR**
Press to power ON.
Press again to power OFF.
POWER ON INDICATOR is lit green when power is ON.

② **VERTICAL SCAN MODE SWITCH <V-SCAN>**
Set to <NOR> normally or when the whole turns greenish.
Set to <AUTO> when the IBM® PS/2 (VGA/MCGA) is connected. Set to <AUTO> or <NOR> to change the timing of the clamp when the left side of the screen is missing.
For <AUTO>, vertical size of the picture is fixed at each mode of PS/2 (350, 400, and 480 lines).

③ **SCAN MODE SWITCH <SCAN>**
This switch automatically selects Over-scan or Under-scan modes according to the horizontal frequency from personal computers or other signal sources.

INPUT SIGNAL / HORIZONTAL FREQUENCY	TTL	ANALOG
15.6 – 17kHz	△	△
17 – 20kHz	○	△
20 – 27kHz	○	○
27 – 39kHz	✻	✻

△=Over scanning screen.
○=Select Over or Under scanning screen.
✻=Under scanning screen.


Over scanning screen

Under scanning screen

④ **TTL COLOR SELECT SWITCH <COLOR>**
This switch sets the types of display colors only when <TTL> is selected on the INPUT SIGNAL SELECT SWITCHES.
Slide to <MONO>, <8>, <16>, or <AUTO (16/64 colors)> appropriate for the connected equipment.
<AUTO> selects 16 or 64 colors for IBM EGA mode automatically.

⑤ **INPUT SIGNAL SELECT SWITCHES**
- VIDEO 1, VIDEO 2 — Composite video signal from <VIDEO INPUT (BNC Type)> or <ANALOG INPUT (D-SUB 25 PIN)> is received.
- TTL — RGB TTL signal from <TTL INPUT> is received.
- ANALOG — RGB ANALOG signal from <ANALOG INPUT (BNC or D-SUB 25 PIN)> is received.

⑤′ **INPUT SIGNAL INDICATORS**
An INDICATOR is lit green when an appropriate INPUT SIGNAL SELECT SWITCH is selected.

⑥ **STRENGTH SWITCH <STRENGTH>**

⑦ **DIRECTION SWITCH <DIRECTION>**

⇨ Use for "ADJUSTING COLOR PURITY". Refer to P. 11.

⑧ **DEGAUSS SWITCH <DEGAUSS>**
If color impurity is still present after adjusting color purity, press this switch.
The switch momentarily degausses the CRT.

⑨ **VOLUME CONTROL <VOL>**
Rotate the control clockwise for more volume and counterclockwise for less volume.

⑩ **VERTICAL POSITION CONTROL <V-POSI>**
(When RGB TTL signal and RGB ANALOG signal are received)
Adjust the control when the position of the display is shifted up or down.

⑪ **HORIZONTAL POSITION CONTROL <H-POSI>**
(When RGB TTL signal and RGB ANALOG signal are received)
Adjust the control when the position of the display is shifted right or left.

⑫ **VERTICAL SIZE CONTROL <V-SIZE>**
(When RGB TTL signal and RGB ANALOG signal are received)
Adjust the control when the display size is too short or too tall.
Rotate the control clockwise for more height and counterclockwise for less height.

⑬ **HORIZONTAL SIZE CONTROL <H-SIZE>**
(When RGB TTL signal and RGB ANALOG signal are received)
Adjust the control when the display size is too narrow or too wide.
Rotate the control clockwise for more width and counterclockwise for less width.

⑭ **COLOR CONTROL <COLOR>**
(When Composite video signal is received)
Adjust to obtain the best color intensity of the picture according to your preference.
Rotate clockwise to increase color intensity and counterclockwise to decrease color intensity.

⑮ **TINT CONTROL <TINT>**
(When NTSC Composite video signal is received)
Adjust to obtain the best flesh tones according to your preference.
Rotate clockwise to add green to the color tones and counterclockwise to add red to the color tones.

⑯ **BRIGHTNESS CONTROL <BRIGHT>**
Adjust according to your preference.
Rotate clockwise for more brightness and counterclockwise for less brightness.

⑰ **CONTRAST CONTROL <CONT>**
Adjust according to your preference.
Rotate clockwise for more contrast and counterclockwise for less contrast.

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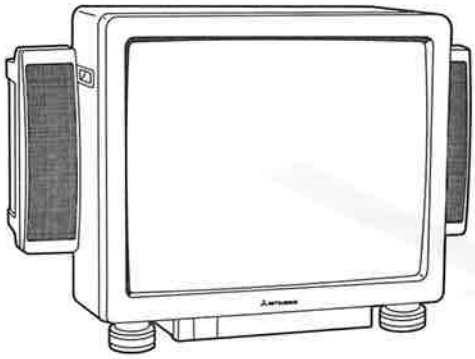
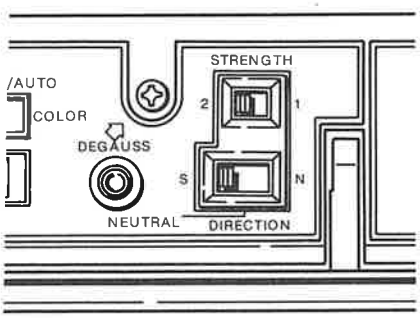
2. ADJUSTING COLOR PURITY

This MITSUBISHI color monitor has a large CRT.
Color impurity (color-polarized parts of picture) may be generated by the earth's magnetic field.
Please follow the instruction below for the best color purity.





① Turn the power OFF.

② Install in a desired location and direction of the monitor.
Check which direction (observe the directional arrow on the front of the monitor) the monitor is facing.

③ Select the position of the DIRECTION SWITCH and the STRENGTH SWITCH according to the chart listed below.

DIRECTION	DIRECTION SWITCH	STRENGTH SWITCH
NORTH	N	1
NORTH EAST	N	1*
EAST	NEUTRAL	1
SOUTH EAST	S	1*
SOUTH	S	1
SOUTH WEST	S	1*
WEST	NEUTRAL	1
NORTH WEST	N	1*

1*=When the direction of the monitor is closer to east or west, slide the STRENGTH SWITCH to position <2>.

④ Input the video signal from your equipment according to this operation manual.

⑤ Turn the power ON.
Input a video signal to the monitor.

⑥ Check no color impurity in the screen.
Color impurity may still persist after adjustment if your location is strongly affected by the earth's magnetic field.

⑦ Press the <DEGAUSS> on the front panel if color impurity is still present after adjusting color purity.

*Adjusting color purity must be done each time the monitor is moved to a new location.

5. USING THE SPECIAL FEATURES

This monitor with special functions can perform as the following:

1. SUPERIMPOSE

It is possible to superimpose RGB ANALOG signals from Composite video signal sources.
*Superimposed signal sources need to output RGB ANALOG signal, synchronized on composite video signal, and control signal.
Input the following signals into D-SUB 25 PIN.

① **RGB ANALOG SIGNAL (PIN Nos. 2, 4, 14)**
To superimpose, input composite video signal.

② **COMPOSITE VIDEO INPUT SIGNAL (PIN No. 9 or VIDEO 1, PIN No. 8 for changing over)**
Composite video input signal for the back ground of superimposed picture.
Input from PIN No. 9 when PIN No. 8 is at High level, or connected to PIN No. 21.
Input from <VIDEO 1> if PIN No. 9 is not connected to any pins.

③ **SUPERIMPOSE CONTROL SIGNAL (PIN No. 6)**
This signal can change Composite video or RGB ANALOG signal for superimposed pictures.

④ **COMPOSITE VIDEO OUTPUT SIGNAL (PIN No. 11)**
In normal cases, superimposed signal sources receive composite video signal from PIN No. 11.
Synchronize RGB ANALOG signal on PIN No. 11, and output superimpose control signal.

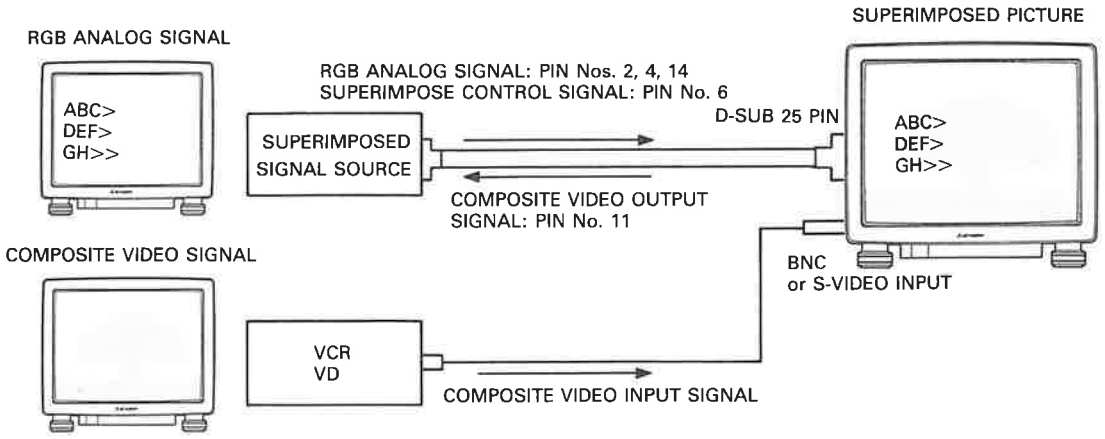
CONNECTION METHOD 1

When composite video output signal is decoded (ex. teletext decoders).

① Input composite video signal for superimpose to <VIDEO 1>, BNC or S-VIDEO INPUT.

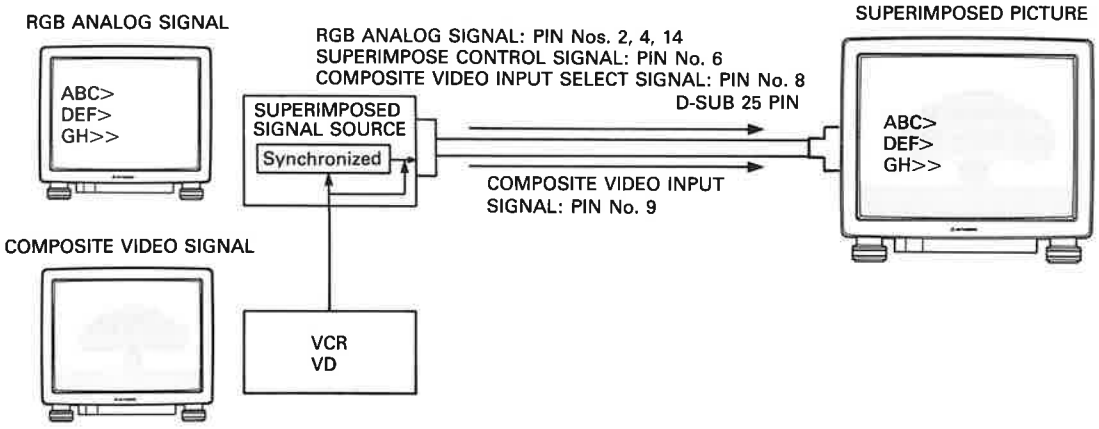
② The Composite video signal outputs on PIN No. 11 of D-SUB 25 PIN to the connected equipment.

③ The connected equipment decodes the Composite video signal of ①, separates it into RGB ANALOG signal and superimpose control signal, and inputs them to the D-SUB 25 PIN of the monitor.



CONNECTION METHOD 2

When superimposed signal is directly inputted from the connected equipment, input the following signals:
Composite video (PIN No. 9).
RGB ANALOG (PIN Nos. 2, 4, 14)
Superimpose control (PIN No. 6).
Composite video input select (PIN No. 8).
Set video input select signal at High level in this case.
Refer to P. 21 for the connection of D-SUB 25 PIN.



*Set the INPUT SIGNAL SELECT SWITCHES to <VIDEO 1> for **CONNECTION METHOD 1 and 2.**

2. WIRED REMOTE CONTROL

1) REMOTE CONTROL OF INPUT SIGNAL SELECTION

This monitor can select the input signal electrically without using INPUT SIGNAL SELECT SWITCHES.
Connect PIN Nos. 8, 22, 23, and 24 of D-SUB 25 PIN connector as listed below.
When using this function, INPUT SIGNAL SELECT SWITCHES do not work.

(a) When PIN No. 24 is at High level or Open,
Wired Remote Control does not work.
Select one of INPUT SIGNAL SWITCHES on the front panel.

(b) When PIN No. 24 is at Low level,
Wired Remote Control works.
Input signal is selected according to the level of PIN No. 8, 22, and 23 as shown below.

PIN No. 22	PIN No. 23	PIN No. 8	INPUT MODE
*1H	*1H	*2L	VIDEO 1 or S-VIDEO INPUT
*1H	L	*2L	VIDEO 2
L	*1H	*2L	ANALOG
L	L	*2L	TTL
*1H	*1H	*3H	Composite video input (Input with D-SUB 25 PIN)

H=High level
L=Low level

*1H=High level or Open
*2L=Low level or Open
*3H=High level or connect to PIN No. 21 (+5V) of D-SUB 25 PIN

2) REMOTE CONTROL OF THE POWER ON/OFF

The remote control can turn the monitor's power ON/OFF by using PIN No. 20 of D-SUB 25 PIN as well as with MAIN POWER ON/OFF SWITCH.
When using this function, keep the MAIN POWER ON/OFF SWITCH ON.

PIN No. 20	POWER
*H	ON
L	OFF

*H=High level or Open
L=Low level

3. DISPLAY OF RGB ANALOG SYNCHRONIZING SIGNAL

This monitor can display RGB ANALOG signal separately from TTL level Sync. signal, using Sync. signal at the following level:

Sync. signal 0.3Vp-p—1.0Vp-p (terminated at 75Ω)
Horizontal+Vertical Composite
Negative

Select (ANALOG) at INPUT SIGNAL SELECT SWITCHES located on the front panel.
(1) Input the signals below to D-SUB 25 PIN.
- RGB ANALOG (PIN No. 2, 4, 14)
- ANALOG Composite video Sync. (PIN No. 16)

or

Normally connect to BNC Type connector, ANALOG composite video sync. (H/H+V)

(2) Input the signals below to D-SUB-25PIN.
- RGB ANALOG (PIN No. 2, 4, 14)
- ANALOG Composite video sync. (PIN No. 9)

Set video input select signal to High level (TTL level). (PIN No. 8)

6. INPUT/OUTPUT SIGNAL SPECIFICATIONS

1. COMPOSITE VIDEO SIGNAL

(1) Input

- Connectors
  BNC Type <VIDEO 1>, <VIDEO 2> 2 Connectors
  S-TERMINAL 1 Connector
  D-SUB 25 PIN PIN No. 9 1 Connector
- Input voltage: 1.0Vp-p ±10%
- Input impedance: 75Ω
- Signal polarity: Positive
  Sync.: Negative

BNC Type

(2) SCANNING FREQUENCY

	NTSC	PAL/SECAM
Horizontal:	15.734kHz	15.625kHz
Vertical:	59.94Hz	50Hz

S-TERMINAL

(3) OUTPUT

- Connectors
  BNC Type <VIDEO OUT> 1 Connector
  D-SUB 25 PIN PIN No. 11 1 Connector
- Output voltage: 1.0Vp-p ±10%
- Output impedance: 75Ω

D-SUB 25 PIN

2. RGB TTL SIGNAL

Input

- Connector
  D-SUB 9 PIN 1 Connector

D-SUB 9 PIN

① **RGB VIDEO SIGNAL**
- Input voltage: Low level: 0 – 0.4V
  High level: 2.7 – 5.0V
- Input impedance: 470Ω pull down
- Input current: −20mA max.
- Signal polarity: Positive

② **SYNC. SIGNALS**
- Input voltage: Low level: 0 – 0.4V
  High level: 2.7 – 5.0V
- Input impedance: 1kΩ pull down
- Signal type: Separate or Composite
- Signal polarity: Both polarities available

③ **SCANNING FREQUENCY: Automatic Synchronization**

Horizontal:	15.6 – 39.0kHz
Vertical:	45 – 100Hz

3. MONOCHROME TTL SIGNAL

Input

D-SUB 9 PIN

- Connector
  D-SUB 9 PIN — 1 Connector

① **RGB VIDEO SIGNALS**
- Input voltage: Low level: 0 – 0.4V
  High level: 2.7 – 5.0V
- Input impedance: 1kΩ pull down
- Input current: −20mA max.
- Signal polarity: Positive

② **SEPARATE SYNC. SIGNAL**
- Input voltage: Low level: 0 – 0.4V
  High level: 2.7 – 5.0V
- Input impedance: 1kΩ pull down
- Signal polarity: Both polarities available

③ **SCANNING FREQUENCY: Automatic Synchronization**
Horizontal: 15.6 – 39.0kHz
Vertical: 45 – 100Hz

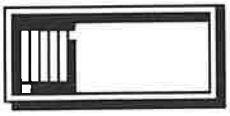
D-SUB 9 PIN ASSIGNMENT AND SIGNAL LEVEL

1) MONOCHROME

PIN No.	INPUT SIGNAL	POLARITY
1	GND	
2	Unused	
3	Unused	
4	Unused	
5	Unused	
6	Intensity	TTL Positive
7	Video	TTL Positive
8	Horizontal Sync.	TTL Positive/Negative
9	Vertical Sync.	TTL Positive/Negative

POSITION OF TTL COLOR SELECT SWITCH <COLOR>

MONO/8/16/AUTO

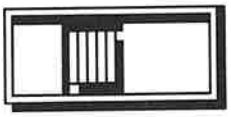


COLOR

2) COLOR GRAPHICS TTL 8 COLORS

PIN No.	INPUT SIGNAL	POLARITY
1	GND	
2	Unused	
3	Red Video	TTL Positive
4	Green Video	TTL Positive
5	Blue Video	TTL Positive
6	Unused	
7	Unused	
8	Horizontal Sync./ Composite Sync.	TTL Positive/Negative
9	Vertical Sync.	TTL Positive/Negative

MONO/8/16/AUTO

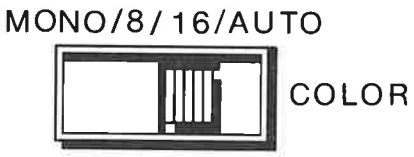


COLOR

3) COLOR GRAPHICS TTL 16 COLORS

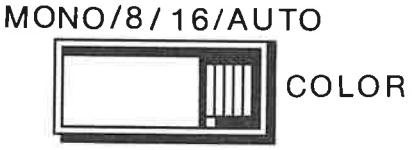
PIN No.	INPUT SIGNAL	POLARITY
1	GND	
2	Unused	
3	Red Video	TTL Positive
4	Green Video	TTL Positive
5	Blue Video	TTL Positive
6	Intensity	TTL Positive
7	Unused	
8	Horizontal Sync./ Composite Sync.	TTL Positive/Negative
9	Vertical Sync.	TTL Positive/Negative

POSITION OF TTL COLOR SELECT SWITCH <COLOR>



4) COLOR GRAPHICS TTL 16/64 COLORS

PIN No.	INPUT SIGNAL	POLARITY
1	GND	
2	Secondary Red Video	TTL Positive
3	Primary Red Video	TTL Positive
4	Primary Green Video	TTL Positive
5	Primary Blue Video	TTL Positive
6	Intensity/Secondary Green Video	TTL Positive
7	Secondary Blue Video	TTL Positive
8	Horizontal Sync./ Composite Sync.	TTL Positive/Negative
9	Vertical Sync.	TTL Positive/Negative



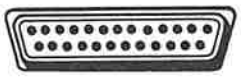
16/64 DISPLAY COLORS ACCORDING TO SYNC. SIGNAL POLARITY

DISPLAY COLORS	SYNC. SIGNAL POLARITY	
	HORIZONTAL SYNC.	VERTICAL SYNC.
16 Colors	Positive	Positive
	Negative	Negative
64 Colors	Positive	Negative

4. RGB ANALOG SIGNAL

(1) Input

BNC Type



D-SUB 25 PIN

- Connectors
  BNC Type 1 Connector
  D-SUB 25 PIN 1 Connector

① **RGB VIDEO SIGNAL**
- Input voltage: 0.7Vp-p
- Input impedance: 75Ω
- Signal polarity: Positive

② **SYNC. SIGNAL**
- Input voltage: TTL level
  Low level: 0–0.4V
  High level: 2.7–5.0V
  ANALOG level
  Composite 0.3–1.0Vp-p
- Input impedance: 1kΩ Pull down
- Signal type: Separate/Composite/Green+Sync.
- Signal polarity: Both polarities available
  Green+Sync.: Negative

③ **SCANNING FREQUENCY: Automatic Synchronization**
Horizontal: 15.6 – 39.0kHz
Vertical: 45 – 100Hz

(2) Output

- Connector
  BNC Type R/G/B/H/V 1 Connector
- Output voltage: 0.7Vp-p
- Output impedance: Select 75Ω/HIGH of IMPEDANCE SELECT SWITCH

D-SUB 25 PIN ASSIGNMENT AND SIGNAL LEVEL

PIN No.	SIGNAL	SPECIFICATION
1	Sync. GND	
2	Red	0.7Vp-p 75Ω Positive
3	Red GND	
4	Green/Green+Sync.	0.7Vp-p 75Ω Positive
5	Green GND	
6	Superimpose	Low level : 0 – 0.2V Composite video High level: 1.0 – 2.0V RGB ANALOG 75Ω
7	Superimpose GND	
8	Video input select	Low level or Open : VIDEO 1 or S-VIDEO INPUT High level : Video input from PIN No. 9
9	Composite video in/ANALOG Sync. in	1.0Vp-p 75Ω ANALOG Sync. : Negative
10	Composite video GND/ANALOG Sync. GND	
11	Composite video out	1.0Vp-p 75Ω Sync. : Negative
12	Composite video GND	
13	PGA mode control	Low level : 400 lines High level or Open: 480 lines
14	Blue	0.7Vp-p 75Ω Positive
15	Blue GND	
16	Horizontal Sync./Composite Sync.	TTL level / ANALOG level
17	Vertical Sync.	TTL level
18	NC	
19	NC	
20	Power ON/OFF Remote control	Low level : OFF High level or Open: ON
21	Unused	+5V
22	Composite/RGB select	Low level : RGB High level or Open: Composite
23	ANALOG/TTL select	Low level : TTL High level or Open: ANALOG
24	Remote	Low level : Wired Remote Control available
25	GND (shield)	

NC=Not Connecting

5. SUPERIMPOSED SIGNAL

Input

D-SUB 25 PIN

- Connector
  D-SUB 25 PIN PIN No. 6 1 Connector
- Input voltage: Low level: 0 – 0.2V
  High level: 1.0 – 2.0V
- Input impedance: 75Ω
- Signal polarity: Low level: Composite video
  High level: RGB ANALOG

6. AUDIO SIGNAL

(1) Input

RCA-JACK

- Connectors
  RCA-JACK <AUDIO 1>, <AUDIO 2> 2 Connectors
  *<AUDIO 1> is used as <VIDEO 1>, <ANALOG> and <TTL>.
- Input level: 473mVrms
- Input impedance: 47kΩ

(2) Output

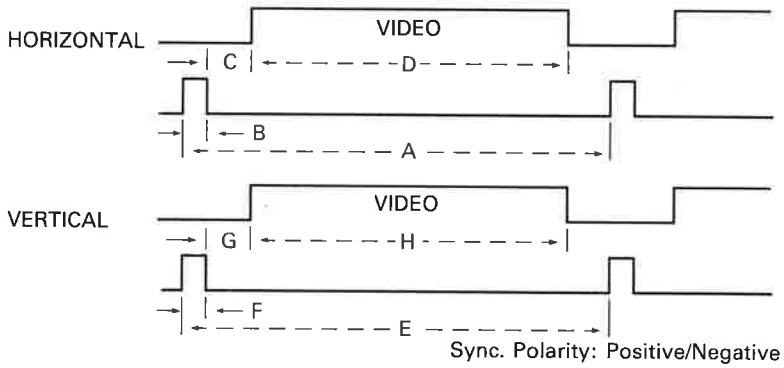
- Connector
  RCA-JACK <AUDIO OUT> 1 Connector
- Output level: 473mVrms
- Output impedance: 1kΩ

(3) Speaker Output

- Connector
  1 speaker terminal
- Rated output: 5W+5W
- Output impedance: 8Ω

7. TIMING CHART

1) SEPARATE SYNC.

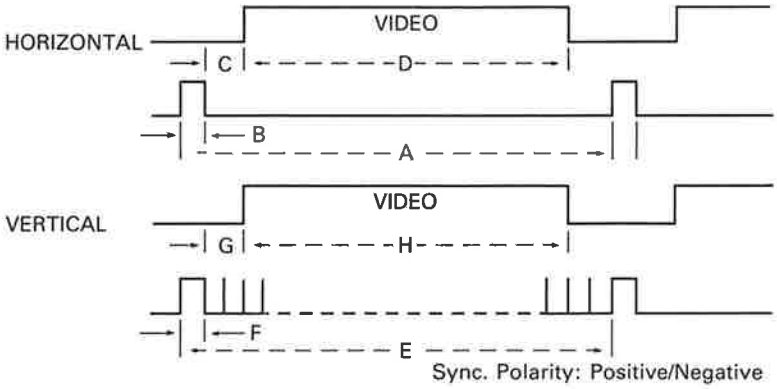


Sync. Polarity: Positive/Negative

TIMING EXAMPLE

	fH	15.75kHz	18.4kHz	21.8kHz	31.25kHz
HORIZONTAL	Aμs	63.78	54.34	45.75	32
	Bμs	4.45	8.20	4.92	5.12
	Cμs	8.03	1.49	1.65	0.64
	Dμs	44.69	44.21	39.36	25.6
VERTICAL	Ems	16.68	20.04	16.75	16.67
	Fms	0.19	0.86	0.59	0.51
	Gms	2.11	0.13	0.1	0.31
	Hms	12.75	19.02	16.01	15.45

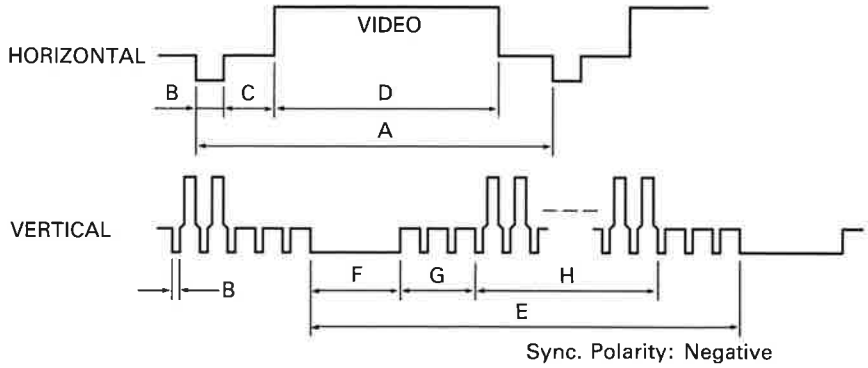
2) COMPOSITE SYNC.



TIMING EXAMPLE

	fH	15.75kHz
HORIZONTAL	Aμs Bμs Cμs Dμs	63.78 4.45 8.03 44.69
VERTICAL	Ems Fms Gms Hms	16.68 0.19 2.11 12.75

3) G (GREEN+SYNC.)+COMPOSITE SYNC.



Sync. Polarity: Negative

TIMING EXAMPLE

	fH	35.0kHz
HORIZONTAL	Aμs Bμs Cμs Dμs	28.57 2.12 3.17 21.18
VERTICAL	Ems Fms Gms Hms	15.0 0.09 1.11 13.71

RETRACE TIME

	COMPOSITE VIDEO MODE	RGB MODE (15.6 – 36kHz)	
		UNDER-SCAN	OVER-SCAN
HORIZONTAL	8μs max.	5μs max.	6.5μs max.
VERTICAL	0.6ms max.	0.4ms max.	0.6ms max.

7. SPECIFICATIONS

- **CRT**
  - Viewable measurement: 27 inches
  - Deflection angle: 110 deg.
  - Shadow mask: 0.76mm – 0.95mm Stripe pitch (Invar mask)
  - Faceplate: Tinted glass
  - Phosphor: B22, Medium-short persistence
- **POWER SUPPLY:** 120V, 60Hz
- **POWER CONSUMPTION:** 240W
- **AUDIO OUTPUT:** 5W+5W
- **DISPLAY AREA:** 480(H)×360(V)mm (When RGB signal is received)
- **RESOLUTION:** RGB mode: 640(H) dots×480(V) lines
  Composite mode: 500 lines
- **DIMENSIONS:** 671(W)×587(H)×481(D)mm
- **WEIGHT:** 53kg
- **CONTROLS**
  - FRONT:
    MAIN POWER ON/OFF SWITCH
    VERTICAL SCAN MODE SWITCH (AUTO/NOR)
    SCAN MODE SWITCH (OVER/UNDER)
    TTL COLOR SELECT SWITCH (MONO/8/16/AUTO)
    INPUT SIGNAL SELECT SWITCHES (VIDEO 1/VIDEO 2/ANALOG/TTL)
    STRENGTH SWITCH (1/2)
    DIRECTION SWITCH (S/NEUTRAL/N)
    DEGAUSS SWITCH
    VOLUME
    VERTICAL POSITION
    HORIZONTAL POSITION
    VERTICAL SIZE
    HORIZONTAL SIZE
    COLOR
    TINT
    BRIGHTNESS
    CONTRAST
  - REAR: IMPEDANCE SELECT SWITCH (75Ω/HIGH)
- **SPEAKERS**
  - Impedance: 8Ω
  - Rated input: 50W max.
  - Dimensions: 103(W)×361(H)×180(D)mm
  - Weight: 2.15kg

8. APPENDICES

1. OPTIONAL CABLES

1) RGB TTL CABLE

MODEL: SC-9F
Connector (Monitor side/Video signal sources side): D-SUB 9 PIN/Free
Use when connecting to other RGB TTL type equipment.
Carefully check for improper connections.

2) RGB ANALOG CABLES

① **MODEL: SC-259**
Connector (Monitor side/Video signal sources side): D-SUB 25 PIN/D-SUB 9 PIN
Use when connecting to the PGA board of IBM® PC/AT.
Carefully check for improper connections.

② **MODEL: SC-25F**
Connector (Monitor side/Video signal sources side): D-SUB 25 PIN/Free
Use when connecting to other video signals to related equipment.
Carefully check for improper connections.

③ **MODEL: SC-2515PS**
Connector (Monitor side/Video signal sources side): D-SUB 25 PIN/D-SUB 15 PIN
Use when connecting to IBM® PS/2 (VGA/MCGA).
Carefully check for improper connections.

④ **MODEL: SC-2515MA**
Connector (Monitor side/Video signal sources side): D-SUB 25 PIN/Mini D-SUB 15 PIN
Use when connecting to APPLE® Macintosh II.

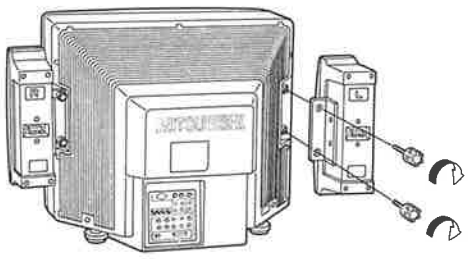
* IBM® is a registered trade mark of International Business Machines Corporation.
* APPLE® is a registered trade mark of APPLE Computer Inc.

2. INSTALLING AND CONNECTING OF ACCOMPANYING SPEAKERS

(1) INSTALLING TO THE MONITOR

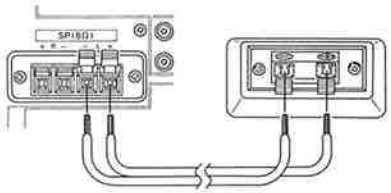
① Install the speakers as shown by the indicators on the rear of the speakers.
The left speaker is "L" on the rear, and the right "R".

② Undo the screws as shown below on the rear of the monitor.
Attach the speakers onto the monitor by the appropriate mounting screws.



***NOTICE:**
- Do not place speakers on the monitor for color impurity protection.
- When speakers are removed from the monitor, tighten the mounting screws on the monitor.

(2) CONNECTING OF LEAD WIRES



① Check the appropriate installation of speakers.

② Twist the strands at the end of the lead wires.

③ To connect the SPEAKER OUTPUT of the monitor to the left speaker, push the black lever <L−> of SPEAKER OUTPUT up, install the twisted lead wire into the hole, and push the lever down to lock the wire into place.

④ Push the black lever <L−> of the left speaker down, install the opposite twisted lead wire into the hole, and release the lever to lock the wire into place.

⑤ Push the red lever <L+> of SPEAKER OUTPUT up, install the twisted lead wire into the hole, and push the lever down to lock the wire into place.

⑥ Push the red lever <L+> of the left speaker down, install the opposite twisted lead wire into the hole, and release the lever to lock the wire into place.

⑦ Connect the right speaker to the monitor the same method as above.

⑧ Gently pull the wires to make sure that the wires are locked into place.

***IMPORTANT:**
- Make sure the speaker wire is inserted up to the wire insulation of the hole.
- Connect lead wires to <SPEAKER OUTPUT> of the monitor as indicated above.
- Do not connect the speakers to the Audio Amp. in parallel.

(3) When using other speakers besides accompanying speakers

- Use the following type speakers:
  Impedance: 8Ω min.
  Rated input: 5W min.
- Do not install general audio speakers close to the monitor.
  Color impurity may be generated by magnetic influence.

In this case, move the speakers away from the monitor.
If color impurity is still present, press <DEGAUSS> on the front panel.
Accompanying speakers are protected against magnetic influence.

3. TILT ANGLE

Adjusting the rear feet of the monitor enables tilt angle to 5° max.

① Tilt angle can be adjusted by loosing the screw indicated with ⬇ mark with a plus driver.

② Tilt angle is adjusted gradually 0° to 5° max. (adjusted 0° when monitors are shipped).

③ Adjust by loosing the right and left screws alternately and slightly, not quickly.

***CAUTION:**
Do not adjust the right or left side foot lower than the others because of the insecure footing.